

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS

PACIFIC INDEMNITY COMPANY
15 Mountain View Road
Warren, NJ 07061-1615

Plaintiff,

v.

ALFRED KEMP, Individually and d/b/a
KEMP PLUMBING
P.O. Box 1322
Pembroke, MA 02359

and

MARTIN SANDBORG, Individually and d/b/a
SANDBORG PLUMBING AND HEATING
13 Liberty Street
Sandwich, MA 02563,

Defendants.

C.A. No.: 04-11975-RWZ
BBO # 552588

**DEFENDANT ALFRED KEMP D/B/A KEMP PLUMBING'S OPPOSITION TO
PLAINTIFF'S MOTION TO EXCLUDE TESTIMONY OF DEFENDANT
KEMP'S EXPERT QUINN HORN UNDER RULE 702 OF THE F.R.E.**

Now comes the defendant, Alfred Kemp d/b/a Kemp Plumbing and hereby
opposes Plaintiff's Motion To Exclude Testimony From Defendant Kemp's Expert Quinn
Horn Under Rule 702 of the Federal Rules of Evidence ("Plaintiff's Motion"). As will
be set forth herein, there are no legitimate grounds to exclude the expert testimony of Dr.
Horn. As such, Plaintiff's Motion should be denied.

Background

This case arises out of a fire at a carriage house on the property of Roger Marino in the early morning hours of December 20, 2002. The fire occurred while the carriage house was empty but, earlier in the day, was undergoing renovations. The plaintiff, Mr. Marino's insurer, paid out \$2,111,113 as a result of the fire at the Marino carriage house. (Plaintiff's Rule 26(a)(1) Initial Disclosure.).

The lawsuit stems from the insurance company's efforts to recoup the money it paid out under its insurance contract. In its efforts to hold someone responsible, plaintiff retained alleged experts Thomas Klem, Thomas Eagar, Donald Galler and Lester McLaughlin – all of whom have attempted to construct a claim against the defendants in the face of all of the sworn testimony that contradicts their theory.¹ Contrary to all of the sworn testimony in the case, plaintiff's experts, led by Mr. Klem, have concluded that Al Kemp was soldering in the cabinet under the sink in the carriage house during the day on Thursday, December 19, 2002 and that Kemp started the fire but that it mysteriously remained undetected by the workers in the house or anyone else until the fire broke out some 10 hours later. In order for this "theory" to work, plaintiff asserts that the water to the carriage house was off at the time the fire started. See Report of Thomas Klem dated July 29, 2005, at 17-21, attached hereto as Exhibit A and Report of Thomas Klem dated March 23, 2006, at 14-15, attached hereto as Exhibit B to Affidavit of John J. Ryan, Jr. previously filed on May 16, 2006, Docket #19. (Hereinafter the "Ryan Affidavit").

Faced with lack of evidence, the plaintiff has attempted to create a case from the minds of its experts that, contrary to every relevant witness's sworn testimony, Al Kemp was soldering under the sink and did turn off the water in the carriage house on the day of

¹ Kemp anticipates filing his own Daubert motions with respect to these experts' purported testimony.

the fire. Central to plaintiff's concoction is that a leaded brass plumbing fitting was allegedly found, post-fire, by plaintiff's expert, Mr. Klem, under the sink and detached from the copper pipes.

Dr. Horn's Opinion

In response to the plaintiff's experts' construct, the defendant proffered, among other things, the report of a metallurgy expert, Quinn C. Horn, Ph.D. Kemp's expert, Dr. Quinn Horn, has a Ph. D. in Metallurgical and Materials Engineering from the Michigan Technological University and is qualified to render opinions on the subject matters set forth in his report. See Curriculum Vitae of Quinn Horn attached as Exhibit A to the Affidavit of Quinn C. Horn (submitted herewith, hereinafter "Horn Affidavit"). Indeed, plaintiff does not take issue with Dr. Horn's qualifications.

Unlike plaintiff's experts, Dr. Horn starts with the premise, consistent with all of the applicable sworn testimony in the case, that all joints of the water piping were intact and that the water in the carriage house was on at the time of the fire.² Dr. Horn goes on

² With respect to the witness testimony in the case, Al Kemp has stated numerous times that he did soldering work under the kitchen sink in the Marino carriage house on Wednesday, December 18, 2002, turned the water in the carriage house on at that time and pressurized all of the pipes in order to test his soldered connections, and left the water in the carriage house on at the end of the day. He did not turn it off again on Thursday, December 19, 2002, and did no soldering in the carriage house on Thursday, December 19, 2002. (Kemp Depo., attached as Exhibit E to Ryan Affidavit at 45, 61, -63, 65, 77, 81.) Kraig Magnussen, the contractor employed by Roger Marino to oversee all of the various subcontractors involved in the renovation of the main house and the carriage house on the Marino property, testified that Al Kemp always soldered properly and he never saw Al Kemp burn any cabinet he had been soldering in. (Magnussen Depo. attached as Exhibit F to Ryan Affidavit at 99.) Magnussen further testified that although he recalled Al Kemp soldering under the kitchen sink on Wednesday, December 18, 2002, he never saw him doing any soldering on Thursday, December 19, 2002. (Magnussen Depo. attached as Exhibit F to Ryan Affidavit at 116, 148, 149.) Magnussen further testified that he believed the water in the carriage house was on Thursday, December 19, 2002. (Magnussen Depo. attached as Exhibit F to Ryan Affidavit, at 111, 115.) Marty Sandborg, the plumber for the Marino renovation project for whom Al Kemp was working, testified that the water in the carriage house was on and pressurized at the time the fire started in the carriage house on Friday, December 20, 2002. (Sandborg Depo., attached as Exhibit G to Ryan Affidavit at 73-74.) Stephen Driscoll, a plumbing friend of Al Kemp who stopped by the Marino carriage house late in the afternoon of Thursday, December 19, 2002, testified that he checked the water in the carriage house at that time and found that it was on and pressurized. (Driscoll Depo., attached as Exhibit H to Ryan Affidavit, at 32.) There are no witnesses in the case who have testified that they saw Al Kemp

to opine that the heat from the fire was sufficient to melt the metal alloy that occurred at the point where the tin/copper solder and the leaded brass valve interfaced but not at the copper/copper soldered joints, that the pressure within the water line provided sufficient force to separate the joint between the copper tube and the brass valve when the solder melted, and that the separation of the joint between the copper tube and the brass compression fitting followed. A complete copy of Mr. Horn's Report, dated March 7, 2006, is attached as Ex. B to the Horn Affidavit, dated February 27, 2007, submitted herewith. The concept that a pre-existing lead-tin interface will begin to melt at the eutectic temperature, as described in Dr. Horn's report, is not "junk science" but is, instead, a basic metallurgical phenomenon that is taught in sophomore-level metallurgy programs at accredited universities. Horn Affidavit, ¶ 7.

Argument

1. Dr. Quinn's Expected Expert Testimony Should Not Be Excluded As It Is Consistent With The Evidence And Is Scientifically Valid

Under Rule 702 of the Federal Rules of Evidence, in determining whether expert testimony is admissible the threshold question is whether the expert's testimony will "assist the trier of fact to understand the evidence or to determine a fact in issue." Fed. R. Evid. 702; see American Computer Innovators, Inc. v. Electronic Data Systems Corp., 74 F. Supp. 2d 64, 66 (D. Mass. 1999). An expert's testimony will only assist a trier of fact if it is relevant and reliable. See American Computer Innovators, Inc., 74 F. Supp. 2d at

using a soldering torch at any time during the day on Thursday, December 19, 2002. There are no witnesses in the case who have testified that the joints of all the water piping in the carriage house were not intact as of the time of the fire on December 20, 2002. There are no witnesses in the case who have testified that the water in the carriage house and in the piping under the sink in the carriage house was not turned on and pressurized at the time the fire started on Friday, December 20, 2002.

66; Shahzade v. Gregory, 923 F. Supp. 286, 287 (D. Mass. 1996) (finding reliable the phenomenon of repressed memory). To determine reliability the trial judge must assess “whether the reasoning or methodology underlying the testimony is scientifically valid and...whether that reasoning or methodology properly can be applied to the facts in issue.” American Computer Innovators, Inc., 74 F. Supp. 2d at 66-67, quoting Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 592-93 (1993).

Plaintiff has submitted a convoluted six-page memorandum of law (Plaintiff’s Memo”) seeking to exclude Dr. Horn’s testimony on the grounds that his opinion is “not based upon a reliable foundation and is, in fact, directly refuted by the very data upon which he purports to rely.” However, as will be set forth herein, Dr. Horn’s opinion is based on the evidence and sound metallurgical principles. It is plaintiff and its expert, that do not understand Dr. Horn’s opinion and, apparently, lack fundamental knowledge of the basic scientific principles upon which the opinion is founded. As such, the Plaintiff’s Motion should be denied.

a. The sworn testimony of witnesses support Dr. Horn’s opinion not Eagar’s

As is set forth above, the sworn testimony of all witnesses with knowledge supports Dr. Horn’s opinion that the pipes were connected, pressurized and that the water was on in the carriage house at the time of the fire. Thus, it is Eagar’s opinion, not Horn’s, which rests on non-scientific speculation and conjecture and entirely disregards the evidence.

b. It is an accepted scientific principle that alloying can occur in a fire

The basic scientific premise of Dr. Horn's opinion is that an alloying of lead (from the *leaded* brass valve) and cooper/tin solder³ occurred with a decreased melting point for the resulting lead-tin alloy. The concept of alloying of metals is a basic one and it is a generally accepted principle in both metallurgy and fire investigations. It is stunning that plaintiff and its expert, Eagar, seem unclear about this basic concept. Regardless of their knowledge, alloying is a generally accepted concept and, as such, can serve as a basis for Dr. Horn's opinion.

As stated in NFPA 921 Guide for Fire and Explosion Investigations (2004 Ed.) (hereinafter NFPA 921):

6.8.3 Alloying of Metals. The melting of certain metals may not always be caused by fire temperatures higher than that metals' stated melting point. It may be caused by alloying.

6.8.3.1 During a fire, a metal with a relatively low melting point may drip onto other metals that do not often melt in fires. This phenomenon can also occur when component parts of a heated object are in contact with each other. *If the lower-melting-temperature metal can mix with the higher-melting-temperature metal, that mixture (alloy) will melt at a temperature less than the melting temperature of the higher-melting-temperature metal and in some cases less than that of either metal ... Examples of relatively low-melting-temperature metals are ... lead ...* Metals that can be affected by alloying include copper and iron (steel). Copper alloying is often found.... (emphasis added).

It is precisely this alloying concept described in the NFPA 921 that Dr. Horn opines occurred in this instance. This is a fundamental principle and is not "junk science."

³ The molecular composition of the leaded brass valve and the solder is not contested by plaintiff.

c. Peer-reviewed scientific literature supports the proposition that lead is on the surface of machined leaded brass plumbing components

One fundamental flaw of plaintiff's challenge to the testimony of Dr. Horn is that plaintiff cannot figure out where the lead came from that interfaced with the tin in the solder. Thus, plaintiff writes in its memorandum:

... Horn devised a theory that the soldered joints at both ends of the cold water valve assembly could have melted apart in the fire, while leaving the adjacent solder ridge intact and unmelted [sic], if a sufficient quantity of lead from the leaded brass valve and the brass fitting at the opposite ends of the valve assembly leached into the tin solder in the solder joints in order to lower the melting temperature of the solder in the joints in order to lower the melting temperature of the solder in the joints some 57°F to 79°F lower than the melting temperature of the supposedly "pure" solder on the ridge. Plaintiff's Memorandum in Support of Plaintiff's Motion, pp. 2-3. (emphasis added).

However, plaintiff's purported recitation of Dr. Horn's opinion is, itself, incorrect and shows plaintiff's misunderstanding of the properties of the materials at issue in this case. To begin with, nowhere in Dr. Horn's report does he contend that lead from the brass valve leached into the tin solder. Dr. Horn's full report is submitted as Exhibit B to his affidavit and it does not make this alleged leaching argument anywhere in it. This fundamental misunderstanding of the evidence, and of Dr. Horn's opinion based on it, goes to the heart of the flaw in Plaintiff's Motion.

The simple answer to plaintiff's misunderstanding is that the lead involved in the alloying came from the *leaded* brass valve in question. Contrary to plaintiff's ridiculous contention that "lead leached out of the brass", Dr. Horn's opinion does not make that assertion. Rather, Dr. Horn's opinion is that the lead from the leaded brass valve was

already at the surface of the valve at the time of the fire. This opinion is based, in part, on scientific literature that indicates that leaded brass plumbing components end up with lead covered surfaces as a result of the machining process. Indeed, had plaintiff's expert, Eagar, endeavored to research the issue, as opposed to creating a straw man argument to knock down, he would have known that lead is added to brass to improve its machinability in plumbing devices. See Surface Composition of Machined Leaded Brass J. X. Wu et al., Surface and Interface Analysis, 22, 323-326 (1994), ("Brass containing a small percentage of lead has been widely used in the production of components for plumbing devices because of its better machinability."); Photoelectron studies of machined brass surfaces A.W. Potts et al., Applied Surface Science 59, 63-67, (1992) ("It is generally assumed that the element lead is added to brass to improve the machining process of the alloy."). Both articles are attached as Exhibit C to the Horn Affidavit.

"The improved machining property is due to the action of the lead forming a thin surface layer and acting as a lubricant during the cutting process." Potts at 69 (emphasis added). Thus, lead will be at the surface of a leaded brass plumbing component because the machining process will "cause an accumulation of lead at the brass surface." Wu at 323. Thus, Dr. Horn's opinion is supported by peer-reviewed literature that found that, after machining, the lead composition on the surface of leaded brass plumbing components is increased by ~900%. Potts at 59, 63-67. Other scientific literature also supports this conclusion:

The results of our ESCA [electron spectroscopy for chemical analysis] analysis show that the sample surface [of a machined leaded brass plumbing component] is strongly enriched with lead. ... Lead appears to be present as islands partially covering the brass surface ... The relatively high fraction (30%-50%) of surface covered by

the Pb [lead] islands is the result of a smearing effect caused by the machining tool.

Wu at 22, 323-326.

Dr. Horn's opinion is not that the lead in the leaded brass valve somehow *leached* to the surface. Rather, Dr. Horn's opinion, consistent with the peer-review research literature set forth above, is that the lead was already at the surface of the leaded brass valve, in a significant quantity, as a result of the machining process of this component. Indeed, that is the whole purpose of lead being added to brass in the machining process of plumbing components -- to use the lead as lubricant *at the surface* of the machined component. Just because plaintiff's expert does not know, or does not understand this fact, does not make it "junk science." Dr. Horn's opinion that, prior to the start of the fire, there would already have been an interface between the tin/cooper solder and the lead from the leaded brass valve at the surface of the valve is based on sound scientific principles notwithstanding plaintiff's experts' ignorance of the properties of the materials at issue in the case.

d. Dr. Horn tested the valve in question and found lead

In order to further support his theory, Dr. Horn arranged for, and participated in, an examination and analysis of the valve, solder and pipes recovered from the scene of the fire in a laboratory by examining them under a scanning electron microscope ("SEM") and conducted an EDS analysis of the materials.⁴ Notably, plaintiff's expert, Eagar, did not attend this analysis but, rather, sent an associate of his. This may offer an

⁴ EDS stands for an "energy dispersive spectrometer" which is used to detect and measure the energy of X-rays emitted from a sample. This is a generally accepted method and plaintiff does not dispute that this was an appropriate and scientifically valid methodology for identifying the make-up of the various items tested.

explanation as to why Eagar misconstrues Dr. Horn's opinion but it certainly does not excuse it.

A great portion of Plaintiff's Memo is spent arguing that no lead was found at the joint where the valve, solder and copper pipe met. For example, plaintiff writes:

... the only EDS analysis of solder from the layer between the valve and the copper riser that is depicted, and purportedly relied upon in Horn's report showed no lead! This profile was taken from the area noted as location "1" on Figure 20, which was on the solder layer of the cross-section of the leaded-brass cold water valve. The EDS profile of this location, Figure 21, shows no lead in the solder at this location. ... However, the fact is that there are no cross-sections of the soldered layers between brass-to-copper joints which the presence of lead, and there is simply no data at all from the testing regime conducted by Horn, or at his direction, that shows the presence of lead in the soldered layer between the copper pipe and the brass valves and fittings in a quantity that is even remotely sufficient to lower the melting temperature of the solder in the unmelted solder ridge Plaintiff's Memo, pp. 4-5 (emphasis in original).

In this regard, Plaintiff's Memo blatantly misrepresents the findings from the laboratory testing done by Dr. Horn. The Horn Report clearly shows the presence of lead at the surface of the separation point on the brass valve. Indeed, strangely, in the body of Plaintiff's Memo, plaintiff breathlessly reports findings of no lead (no lead!), yet, in a footnote to Plaintiff's Memo plaintiff, rightly, does not dispute the finding of lead at various locations tested. See Plaintiff's Memo, fn. 4 ("Horn's report does reference EDS spectra which report the presence of lead at four locations... Figure 12 reportedly detected lead on the unmelted solder ridge."). The problem is, again, that plaintiff's expert, Eagar, misinterprets the data and then argues against the scientific validity of an opinion that is not Dr. Horn's opinion.

i. Dr. Horn's Report Figure 12

As stated above, the plaintiff does not dispute the finding of lead in the area referenced in Figure 12 set forth in Dr. Horn's Report. Rather, plaintiff goes off on a tangent arguing that the presence of lead as demonstrated by Figure 12 actually supports plaintiff's position:

In fact, Horn reports the presence of lead in the solder ridge (Exhibit "A", Pg. 8 and Figure 12, Pg. 11), so that, based on Horn's own test data, the melting temperature of the unmelted ridge should have been at least as low as, if not lower than, the melting temperature of the solder in the joints that did melt. Plaintiff's Memo, pp. 5 (emphasis in original).

Plaintiff is simply wrong. The problem with plaintiff's position is that it misstates the location of the sample analyzed in Figure 12 where lead was found. Repeatedly, Plaintiff's Memo refers to the area analyzed as the "unmelted ridge" but the area analyzed in Figure 12 is never described in the Horn Report as the "unmelted ridge." Dr. Horn references as a prominent feature, on the section of the copper tubing being examined, a ridge that "circumnavigates the tube" but does not say that is where the test sample came from. Rather, the actual area where lead was found that underwent EDS analysis is shown in the Horn Report at Figure 10, boxes 1 and 2. See Horn Report, p. 8 ("This ridge is shown at a higher magnification in the SEM image in Figure 10. EDS analysis was performed in the regions denoted by the red boxes labeled "1" and "2" in this image.") (emphasis added). This subtle distinction regarding from where the sample was taken (on the ridge vs. an area in the vicinity of the ridge), while seemingly semantics in a legal brief, is of great import when considering microscopic analysis. Even a cursory review of Exhibit 10 shows that the area where plaintiff concedes lead

was found --- depicted in red box 2 on Exhibit 10 -- is not "on top of the unmelted ridge" but is, instead, adjacent to that ridge. In other words, lead was found precisely where it would be expected to be found in connection with Dr. Horn's opinion -- in front of the ridge at the interface between the solder and the leaded brass valve. The fact that plaintiff's expert misunderstands from where the sample was taken for EDS testing is a result of his failure to attend the laboratory testing and/or his failure to carefully review the Exhibits in Dr. Horn's report. In either case, such is a failing of plaintiff and its expert and not Dr. Horn. Certainly, the fact that plaintiff's expert got it wrong, is not grounds to exclude Dr. Horn's expert testimony.⁵

Lead was also found in other areas relevant to Dr. Horn's opinion. On page 17, Figure 17 of Dr. Horn's Report, there is a SEM image of the inner surface of Joint Section 2." The next page of Dr. Horn's Report (p.18, Figure 18) shows the EDS spectra results for the region examined and clearly shows the presence of lead (Pb). Thus, contrary, to plaintiff's assertion that no lead was found at the interface, lead was found under laboratory analysis (that Eagar did not attend) and such is stated in Dr. Horn's Report.

The remainder of Plaintiff's Memo consists of general rhetorical arguments that do not have any scientific validity. Generally, plaintiff argues rhetorically: why didn't other joints under the sink come loose in a similar fashion since they also had leaded brass fittings and the same copper/tin solder was used to join them? The answer is simple and lies in the sworn testimony that plaintiff keeps wanting to disregard: by all accounts

⁵ In fact, Dr. Eagar does not have a good-faith basis to challenge where the test sample was taken from since he was not present at the time it was analyzed. Simply put, Plaintiff's Motion must fail because it is premised on incorrect factual assertions about which the expert witness, Eagar, is not competent to testify since he did not participate in the laboratory analysis.

the water was on and the pipes were pressurized at the time of the fire. Thus, once one pipe burst due to the alloying described by Dr. Horn, the area under the sink would be exposed to water – a generally accepted method for decreasing ambient temperature and fire suppression. As such, once one of the pipes became detached, the conditions necessary for the alloying described in Horn's Report to occur would no longer be present.⁶

Conclusion

Contrary to the assertions in Plaintiff's Motion, Dr. Horn's opinion is grounded in established metallurgic science applied to the facts and sworn testimony of the case. In contrast, it is plaintiff's expert's opinion that is against all sworn testimony and is substantially based on conjecture and speculation. Under such circumstances, plaintiff's Motion, should be denied.

Respectfully submitted,
ALFRED KEMP d/b/a KEMP PLUMBING
By his attorney,

/s/ Christopher G. Betke
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CERTIFICATE OF SERVICE

I, Christopher G. Betke, hereby certify that on February 27, 2007, I served a copy of the within document via electronic filing to: Matthew H. Feinburg, Esq., Feinberg & Kamholtz, 125 Summer Street, 6th Floor, Boston MA 02110; Daniel Q. Harrington, Esq., Cozen & O'Connor, 1900 Market Street 3rd Floor, Philadelphia, PA 19103; Philip Tierney, Esq., Finnegan, Underwood, Ryan & Tierney, 22 Batterymarch Street, Boston, MA 02109.

/s/ Christopher G. Betke
Christopher G. Betke

⁶ The presence of water in the cabinet under the sink also explains why this area of the kitchen suffered remarkably little damage as compared to the rest of the kitchen and the carriage house as a whole.